

CLAIMS

1. Spin valve device comprising at least one stack of layers comprising an electrically conductive, nonmagnetic layer (NM) placed between a first (R) and a second (R', F) magnetic layers, the first (R) and second (R', F) magnetic layers having a magnetization with a certain direction, said device being characterized in that at least one of said first and second magnetic layers (R, R', F) has, at the interface with the nonmagnetic layer (NM), a specular reflection for the conduction electrons dependent on the orientation of the spin of the electrons relative to the magnetization direction in the magnetic layer or layers.
2. Device according to claim 1, wherein the magnetic layer or layers (R, R') having a specular reflection are made from a material taken from within the group including ferrimagnetic oxides based on iron and/or nickel and/or cobalt and/or chrome or ferromagnetic nitrides based on iron and/or nickel and/or cobalt.
3. Device according to claim 1, wherein the electrically conductive, nonmagnetic layer (NM) is of a metal taken from within the group including copper, silver and gold.
4. Device according to claim 3, wherein the electrically conductive, nonmagnetic layer (NM) has a thickness less than approximately 10 nm.
5. Device according to claim 1, also comprising an anti-ferromagnetic layer adjacent to at least one of said first and second magnetic layers (R, R').
6. Device according to claim 1, wherein the stack is deposited on a substrate (S).
7. Device according to claim 1, wherein the stack is covered by a protective layer (P).
8. Device according to claim 1, wherein the first (R) and second (R') magnetic layers in each case have said electron specular reflection.
9. Device according to claim 1, wherein the first magnetic layer (R) has an electron specular reflection, the second magnetic layer (F) not having said specular reflection, but having a diffusion of the electrons dependent on the orientation of the spin of the electrons relative to the magnetization direction in said second layer (\bar{F}).
10. Device according to claim 9, wherein the second magnetic layer (F) having a diffusion of the electrons is a material taken from within the group

including transition metals, alloys based on nickel and/or iron and/or cobalt.

11. Device according to claim 10, also comprising a ferromagnetic layer adjacent to the second magnetic layer (F).

12. Device according to claim 1, wherein a first stack of layers (K) comprises a first electrically conductive, nonmagnetic layer (NM) placed between a first magnetic layer (R) and a second magnetic layer (F) and a second stack (K') of layers comprising a first electrically conductive, nonmagnetic layer (NM') placed between a first magnetic layer (F) and a second magnetic layer (R'), the second magnetic layer of the first stack (K) coinciding with the first magnetic layer of the second stack (K'), said layer (F) having a diffusion of the electrons dependent on the orientation of the spin of the electrons, the first magnetic layer (R) of the first stack (K) and the second magnetic layer (R') of the second stack (K') having in each case a specular reflection of the electrons dependent on the orientation of said electrons.